

AMENDMENTS TO THE CLAIMS:

1. (currently amended) A vortex grit trap comprising a generally vertically extending tank of circular cross-section including a separation zone having an inlet and an outlet for liquid flow to and from the tank, and in which liquid is circulated about a longitudinal axis of the tank, and, a grit collection zone positioned beneath the separation zone in use, the trap further comprising a generally circular tank divider centered on the vertical longitudinal axis of the tank and extending transverse thereto, the divider defining a notional boundary between the separation and collection zones of the tank and being of smaller diameter than the adjacent region of the tank so as to define with the adjacent tank wall an annulus through which grit passes from the separation zone to the collection zone in use, and, means for generating a cloud of gas bubbles migrating in use upwardly through substantially the whole of said annulus whereby substantially all grit passing from the separation zone into the collection zone passes through the upwardly moving bubble cloud in said annulus so that organic solids settling with the grit are displaced upwardly by the bubbles into the flow within the separation zone while the grit passes through the bubble cloud in the annulus and into the collection zone, said means for generating including at least one outlet or nozzle disposed approximately at said boundary between the separation and collection zones.

2. (original) A vortex grit trap as claimed in claim 1 wherein said gas is air.

3. (original) A vortex grit trap as claimed in claim 1 wherein said divider includes an axially extending peripheral skirt extending said annulus into an annular passage in which said

bubble cloud is formed and through which settling grit and rising air bubbles pass in generally opposite directions.

4. (original) A vortex grit trap as claimed in claim 1 wherein said means for generating said upwardly moving bubble cloud in the said annulus rotates about the longitudinal axis of the tank to ensure even distribution of bubbles in the annulus.

5. (original) A vortex grit trap as claimed in claim 1 wherein said divider forms part of said means for generating said bubble cloud, air under pressure being supplied to the interior of said axially extending skirt and passing through circumferentially distributed perforations in said skirt or wall to liberate air bubbles into the liquid in said annulus.

6. (original) A vortex grit trap as claimed in claim 1 wherein said divider rotates about the longitudinal axis of the tank and includes, on its face presented to the separation zone of the tank, impeller means generating, through rotation of the divider, a rotational flow in the liquid in the separation zone.

7. (original) A vortex grit trap as claimed in claim 1 wherein the separation zone is of significantly larger diameter than the collection zone and the separation zone includes, at its lower-most end, a frusto-conical region terminating the collection zone.

8. (original) A vortex grit trap as claimed in claim 1 wherein the tank wall is defined at least in part by a tank liner.

9. (currently amended) A method of separating grit from an aqueous sewage flow containing, inter alia, particular grit and organic solids, the method comprising, generating and maintaining a rotating flow in a tank to permit gravity separation of the denser particles in the flow towards the axis of rotation, causing the settling particles to pass through an annular gap in a first direction, and, during the maintaining of the rotating flow in said tank, causing a continuous cloud of gas bubbles to pass through said annular gap in an opposite direction, whereby the coaction of the settling particles with the bubble cloud separates lower density organic solids from the settling particles and returns them to the rotating flow allowing the more dense grit particles to collect for removal.

10. (new) A vortex grit trap as claimed in claim 1 wherein said means for generating includes a plurality of nozzles or perforations disposed at said boundary between the separation and collection zones.

11. (new) A vortex grit trap as claimed in claim 10 wherein said nozzles or perforations are on said divider and thus dispense gas in an outward direction into said annulus.

12. (new) A vortex grit trap as claimed in claim 11 wherein said nozzles or perforations are circumferentially spaced about said divider.

13. (new) The method claimed in claim 9 wherein the causing of said continuous cloud of gas bubbles to pass through said annular gap includes causing said cloud of gas bubbles to pass substantially uniformly throughout said annular gap.

14. (new) The method claimed in claim 9 wherein the causing of said continuous cloud of gas bubbles to pass through said annular gap includes dispensing gas into said annular gap through a plurality of circumferentially spaced nozzles.